

Integrating Theories of Psychological Needs-as-Requirements and Psychological Needs-as-Motives: A Two Process Model

Mike Prentice, Marc Halusic and Kennon M. Sheldon*

University of Missouri

Abstract

Two conceptions of psychological needs predominate within contemporary motivational science. Motive disposition theory conceives of needs as behavioral motives which direct behavior (needs-as-motives), while self-determination theory conceives of needs as universally required experiences for optimal functioning (needs-as-requirements). Until recently, these perspectives on psychological needs have proceeded without much intersection, despite the fact that they address the same fundamental concept. Here we summarize the Two Process Model of Psychological Needs, which attempts to bridge these two conceptions. We argue that psychological needs are best defined as *tendencies to seek out certain basic types of psychosocial experiences, to a somewhat varying extent across individuals, and to feel good and thrive when those basic experiences are obtained, to the same extent across individuals*. We suggest that this definition allows a reconciliation of needs-as-motives and needs-as-requirements perspectives and a more consilient science of human motivation. Empirical support for the TPM is also summarized.

Introduction

Understanding human motivation is fundamental to the study of personality and psychological science more broadly. In their attempts to explain human behavior, motivation scientists have long relied on notions of basic human motivations for particular needs. One fundamental problem that faces these endeavors, though, is adequately defining a *psychological need*. To date, conceptualizations of psychological needs remain somewhat varied (see Pittman & Zeigler, 2007 for a review), and what is to be rightly considered a need is also a topic of debate (see Baumeister & Leary, 1995). Still, many of these perspectives tend to characterize needs in two basic ways that often talk past each other: as experiential requirements or as behavioral motives. So toward the goal of reconciling contemporary need definitions, and thus the theories that are constructed on top of them, a question we will address here is, as follows: Can two prominent conceptions of psychological needs be integrated?

In this article, we will provide an overview of an emerging Two Process Model of psychological needs (TPM; Sheldon, 2011; Sheldon & Schöler, 2011), outline some supportive data, and point toward remaining questions and research imperatives. We will demonstrate that the Two Process Model holds a promise for integrating need conceptualizations from two macro-theories of motivation, self-determination theory (SDT) and motive disposition theory (MDT), providing a means for reconciliation between the broader perspectives on psychological needs that these theories represent. Specifically, we will treat SDT as an exemplary theory of the needs-as-experiential-requirements viewpoint, and MDT as an exemplary theory of the needs-as-behavioral-motives viewpoint. We believe a successful integration of the core concepts of these theories can help the field to further

address crucial issues surrounding initiation and maintenance of behavior, implicit and explicit motivational processes, personality development, and optimal well-being.

We will begin by providing some conceptual and theoretical background for the TPM by outlining the SDT and MDT perspectives on psychological needs as exemplars of the needs-as-requirements and needs-as-motives perspectives, respectively. From there, we will outline the TPM and the way in which it integrates these different vantage points and review the emerging research in support of the TPM. Lastly, we provide recommendations for future research on the TPM and toward a more integrative science of human motivation. We would like to caution the reader that what ensues can only be a brief and optimistic sketch of the model and its promise; interested readers who wish for in-depth accounts of the TPM and its supportive research should consult Sheldon (2011) and Sheldon and Schöler (2011).

Defining Psychological Needs

Needs-as-requirements: the self-determination theory perspective

That organisms require certain elements to thrive is both a longstanding and intuitively appealing notion. For example, biologically based need conceptions posit that organisms require certain requisite goods for healthy functioning, such as water, air, sleep, etc. That these commodities are requirements seem a truism. One just has to watch their office plant wither without water to understand that what is missing is crucial for the plant's well-being. The deterioration that ensues from relatively less immediate needs, such as sleep, is also clear (Colten & Altevogt, 2006). However, more difficult questions arise when we begin to consider whether certain *psychological* inputs are necessary conditions for healthy human development and functioning. Are there certain psychological needs that are in fact universally necessary for well-being? If so, what are they?

Numerous theories assume that there are psychological needs that constitute requirements in much the same way as physical needs and thus, are fundamental to thriving. For example, Maslow (1954) likened psychological needs to vitamins, and so his famous hierarchy outlines a view of a healthy psychosocial experiential "diet". Many theorists have proceeded from this nutrition-based framework and have attempted to posit universal needs that provide for maintenance and growth and can cause suffering when absent. Examples of proposed universal psychological needs include belongingness (Baumeister & Leary, 1995), superiority (Adler, 1927), self-actualization (Rogers, 1961), self-esteem (Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004), self-consistency (Heider, 1958), or autonomy, competence, and relatedness (Deci & Ryan, 2000). Despite inconsistencies and exclusivities in the needs identified between these perspectives, they are all based on the needs-as-requirements perspective, which assumes that, like the vitamins in one's diet, there are particular psychosocial experiences that form necessary inputs for human thriving: Having them leads to optimal growth and fulfillment, while being deficient in them may hinder growth and generate frustration.

What follows from this universal requirements perspective is that a psychological need must be important for all members of a species to experience, regardless of genetic predisposition and personal history and enculturation. Although people's manifold stated wants may differ significantly from person to person, what humans truly need in order to be happy and healthy was honed through our shared phylogenetic development and is the same basic set of inputs for all people. To extend the plant example above, individual plants of a given species may vary to some degree in how much they can tolerate water deprivation, but this variance is constrained by the parameterization of the need across the species.

Likewise, though perhaps not all humans suffer to precisely the same degree from poignant exclusion, there are likely few, if any, who fail to feel the sting (cf. McDonald & Donnellan, 2012). Thus, it is not necessary that the need *processes* are completely invariant for universality to hold; people can develop different dispositions ontogenetically around phylogenetically constant needs, much as proposed for the Big Five personality traits (Nettle, 2006). This will become an important point again later as we point toward integration of MDT, which tends to cover ontogenetic processes, and SDT, which tends to cover phylogenetic ones.

Often researchers base a need-as-requirement argument upon a demonstration that satisfying the need leads to positive outcomes, such as increases in well-being or performance toward goals, whereas thwarting the need leads to ill-being or performance decrements, and that these processes generally follow across the species (e.g., Chirkov Ryan, Kim, & Kaplan, 2003; Deci & Ryan, 2000; Ryan & Deci, 2008; Sheldon, Elliot, Kim, & Kasser, 2001). But how do we know what types of experiences (if any) are actually fundamental requirements? Baumeister and Leary (1995) provided a set of criteria with their analysis of belonging as a requirement. They reviewed literature examining the positive and negative effects of satisfying and thwarting belongingness, respectively, to provide what is currently a widely accepted view of belongingness as a universal need, as well as a rubric for identifying “true” needs (the rubric is extensive, so we will not outline it here). Thus, a general consensus on an experiential need is not impossible, though to avoid a need zoo akin to that of early instinct theories, some stringent criteria should be applied.

Regarding comprehensive theories of needs-as-requirements, self-determination theory (SDT; Deci & Ryan, 1985, 2000; Ryan & Deci, 2000, 2008) provides an extensively validated and theoretically fleshed out exemplar. The basic psychological needs under this framework are relatedness (feeling socially connected, akin to the need for belongingness), competence (experiencing effectance and mastery), and autonomy (experiencing the self as the initiator and owner of one’s behavior). As suggested above, research on these needs has demonstrated the positive effects of satisfying them, the negative effects of thwarting them, and general consistency of these relations across different types of situations, personality styles, and cultural contexts (see Ryan & Deci, 2008). For example, evidence for the universality of autonomy, competence, and relatedness as requirements was provided by Sheldon et al. (2001), by Sheldon, Cheng, and Hilpert (2011), and by Tay and Diener (2011). The latter found that mastery, social support and love, and self-direction and autonomy, each independently contributed to well-being across their near-global sample (123 countries). Though we define needs-as-requirements according to the basic set offered by SDT because it offers the most defensible set based on research and theory to date, we note that the acceptance of the basic set of needs offered by SDT is ultimately not necessary for accepting the TPM (Sheldon, 2011).

Needs-as-motives: the motive disposition theory perspective

The preceding conceptualization of needs held that they were “experiential vitamins” with the attendant benefits and decrements that nutritive processes generate (i.e., thriving when nutriment present, withering when absent). There is, however, another traditional conceptualization of needs that suggests that they are impulses that initiate and guide particular behaviors toward particular rewards, or the needs-as-behavioral-motives perspective. An early example of a needs-as-motives theory is provided by Murray (1938), who outlined a set of 5 classes of behavioral motives for deriving rewards from the environment. This perspective has seen continuous developments and extensions, the most

notable of which is perhaps McClelland's (1984, 1985), as well as Winter (1992), Schultheiss (2008), Sheldon and Schöler (2011), and many others, and continues to provide a cornerstone for the study of human motivation.

Though MDT theorizing also suggests that the small set of behavioral motives it studies are broad and species typical, where it differs from the needs-as-requirements perspective is in its assumption that "all motives are learned" (McClelland, 1965, p. 322) and that people vary in their motives due to learning histories. Thus, in contrast to the universal requirement perspective, individual differences can be uncovered between people in their motive dispositions, such as the need for achievement (nAch), the need for affiliation (nAff), and the need for power (nPow). Research on MDT tends to proceed by demonstrating that individual differences in motive strength, typically measured by the coding of themes in participants' writing about ambiguous pictures of social situations (Schultheiss & Brunstein, 2010), predict differences in what kinds of behaviors people enact, what kinds of situational perceptions they have, and how motive-relevant experiences affect them (e.g., Brunstein, Schultheiss, & Grassmann, 1998).

Comparing needs in MDT and SDT

To review, so far we have examined the treatment of psychological needs from the needs-as-requirements (exemplified in SDT) and needs-as-motives (exemplified in MDT) perspectives. According to SDT's basic needs theory, needs are psychological "nutriments" that are universally required types of experiences that afford optimal functioning. Under this view, *everybody* needs to have these nutriment, but, like each plant in a plot of farmland, the extent to which each person is receiving adequate amounts of the required nutriment can vary from person to person, and so individual satisfaction may vary. Thus, SDT proffers a process model in which varying situations create varying amounts of satisfaction, which affects the quality of peoples' outcomes.

Although SDT explicitly attempts to "convey the essence of the human being as an active agent", (Deci & Ryan, 1991, p. 280), and does so extensively within other branches of the theory (such as in its causality orientation mini-theory), an unfortunate aspect of SDT's basic needs theory has been a local neglect of the specific need-relevant resources the person has at her disposal to actively satisfy her own needs when they are not readily provided by the environment (Sheldon, 2011). In other words, implicit in the "context satisfies or thwarts needs" framework is a somewhat passive organism, thriving or withering mostly as a function of ambient need-relevant resources. Thus, it maintains the view of the person, like the plant above, "stuck" withering when resources are not provided and ignores the agentic, ambulatory aspects of being human. We think integrating MDT and SDT need concepts can provide a useful bridge across the SDT mini-theories such that agency can be treated more readily in the context of striving for particular need satisfactions. In contrast, MDT focuses on individual differences in the strength of numerous motives, or the readiness with which people perceive the opportunity and activate behavior to satisfy the psychological needs those motives target. From this perspective, people have different motivational profiles generated out of early learning experiences, and the behaviors they generally enact reflect these differences. Although MDT offers a framework for connecting behavior and needs, an unfortunate consequence of its focus on needs-as-motives is that it has devoted relatively little research to the connection between motive-relevant experiences and well-being outcomes (though see, e.g., Brunstein et al., 1998; Schultheiss, 2008).

The SDT and MDT traditions also vary somewhat in a few other important ways. First, the needs they consider to be focal are different, though only slightly. MDT research has chiefly studied three basic motives that vary between people: nAch, nAff, and nPow. SDT, as outlined above, holds that autonomy, competence, and relatedness are the three needs that form the fundamental psychological requirements across all people. SDT's need for competence and MDT's nAch are quite similar in that each emphasizes the need to develop a sense of mastery over tasks and environment. SDT's need for relatedness and SDT's nAff are also similar in that each emphasizes the need to feel a sense of belonging with others. SDT's need for autonomy and MDT's nPow overlap in that both contain a component concerned with freeing oneself from external pressures, but they diverge primarily where MDT also considers influencing others to be a key part of the nPow construct.¹

Further, the theories diverge in terms of the level of access the person has to be his or her own motivational processes. The focus of SDT is on an agentic self that is consciously aware of the experiential inputs it is receiving (or not receiving). Under MDT, the focus is on implicit impetuses, generated from an operant learning processes, that guide energization and direction of behavior in response to incentives in the environment. Thus, need satisfaction in the SDT tradition is typically measured via participant self-report, whereas motive strength in the MDT tradition is measured via both self-report and content coding projective tests (which may or may not be correlated depending on referential competence; see Schultheiss & Strasser, 2012).

The first (universal requirements versus idiosyncratic motive strengths) and third (explicit versus implicit processes) divergences raised above do pose significant roadblocks to theoretical integration, whereas the content domains of the need constructs are a less serious sticking point given the considerable overlap. Both perspectives, however, have rich research traditions and much empirical support for their basic tenets. Despite their divergent starting points, might there be a way to integrate them for a more comprehensive theory of human psychological needs? Below we will attempt to point a way toward doing just that.

Integrating motive and requirement perspectives: parsing the motivational episode

There are a few key observations that suggest distinguishing needs-as-motives and needs-as-requirements, but which also suggest they might still be included into a single temporal framework (Sheldon, 2011). First, the motives that initiate and guide behavior tend to be salient at the beginning of an action sequence, whereas experiences resulting from the action sequence are salient at the end of the sequence (Gollwitzer, 1990). This suggests that particular actions couple initiating motives with resulting experiences. A second observation is that the particular behavioral motives people pursue may sometimes "miss the mark" in terms of the experiential requirements they are aimed at garnering, and thus may not necessarily lead to thriving upon goal attainment. For example, strivings for popularity and for material success often do bring the rewards they seek, but such attainments generally do not lead to physical and psychological well-being (Niemiec, Ryan, & Deci, 2009; see also Crocker & Park, 2004). Third, people may not have a strong behavioral motive to satisfy unmet experiential requirements. For example, a person may experience a serious failure and, rather than redouble efforts or find somehow else to excel, may generally give up on competence strivings, becoming helpless. As the latter two possibilities suggest, motives can become decoupled from requirements such that activated motives may not fulfill requirements, and unmet requirements may not activate relevant motives.

These observations led Sheldon (2011) to propose that the MDT and SDT perspectives have been examining essentially the same constructs and processes, but at different time points in a goal sequence. The MDT perspective provides a means for understanding how people become dispositionally oriented to pursue certain types of goals and incentives more than others, via early learning and reinforcement, whereas the SDT perspective provides a means for understanding why some types of goals, even when achieved, may not lead to positive outcomes, whereas other types of goals do produce thriving and growth. A dispositional motive supplies an implicit point of reference for evaluating experiential inputs (cf. Carver & Scheier, 1998). When the level of input for a certain type of desired experience falls below this reference point, domain-relevant motives are then aroused (Atkinson & Birch, 1970) and function in a test-operate-test-exit sequence (TOTE; Miller, Galanter, & Pribram, 1960). This process is summarized in Figure 1 and can be seen to play out below when we present empirical support for the TPM. The TPM, which combines insights from SDT and MDT conceives of a need in two phases. In the first phase, feelings of dissatisfaction of a particular need spurs motivation to approach need satisfying experiences (or relieve dissatisfaction). In the second phase, attainment of the experience rewards (or in some cases punishes) the behavior, making it more (or less) likely to occur in the future.

The MDT (and needs-as-motives perspectives more generally), then, is best able to capture how rewards sensitize people to different types of experiences, such that they develop characteristic motive dispositions, which affect the front-end perception of situations and the affordances they may contain. SDT (and needs-as-requirements perspectives more generally) is best able to capture the back-end dynamics, as well as provide a framework for understanding the satisfaction of which types of experiences should generally contribute to well-being and provide a basis for reinforcement. Only by putting these two perspectives together in one framework can one fully describe psychological need processes and account for developmental trajectories around a small set of motivational orientations.

These ideas, along with relevant empirical data summarized below, have led to a basic definition of psychological needs as *tendencies to seek out certain basic types of psychosocial experiences, to a somewhat varying extent across individuals, and to feel good and thrive when those basic experiences are obtained, to the same extent across individuals* (cf. Sheldon, 2011). This definition encompasses both ontogenetic imperatives to obtain certain incentives or experiential rewards and phylogenetic tendencies to benefit when those experiential rewards are obtained. Below, we explore the advantages of this conceptualization.

Evidence for the TPM

SDT needs function as motives. As discussed above, most research to date supports the notion that the needs for autonomy, competence, and relatedness are experiential requirements. Cross-cultural studies from various research teams have pointed to the unique effects of each type of need satisfaction on well-being (e.g., Sheldon, Cheng, et al., 2011; Tay & Diener, 2011). Further, the satisfaction of these needs is what makes for “good days”

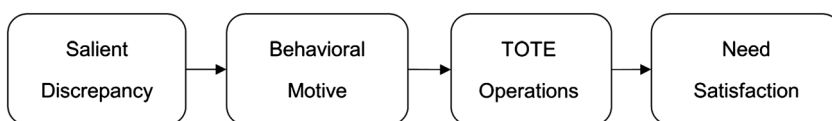


Figure 1 A regulatory process linking needs-as-requirements and needs-as-motives.

(Sheldon, Ryan, & Reis, 1996), secure attachments (LaGuardia, Ryan, Couchman, & Deci, 2000), good sex (Smith, 2007), good teaching (Filak & Sheldon, 2003), and much else. In fact, need satisfaction typically mediates the positive effects of many other constructs on well-being, at many levels of analysis (Sheldon, Cheng, et al., 2011; Sheldon & Tan, 2007). Part of why particular contexts, relationships, or personality variables are associated with well-being is that they facilitate the satisfaction of psychological needs.

However, given SDT's needs-as-requirements orientation, much less research has been aimed at examining whether these needs might also act like behavioral motives such that, when unsatisfied, ameliorative behavior is initiated. If the SDT needs provide for adaptive behavioral programs (Deci & Ryan, 2000), then they should help people to try to obtain important missing experiences. A lonely person should seek company, an incompetent person should seek greater mastery, and a person who feels controlled should seek greater autonomy. To test these propositions, Sheldon and Gunz (2009) proved cross-sectional correlational and experimental and longitudinal evidence that peoples' felt dissatisfaction of a need corresponded to the desire to try to satisfy that same need, suggesting unmet needs can spur adaptive behavior (cf. Baumeister & Leary, 1995). Further, Sheldon and Gunz's results supported the distinctiveness of each need, as there were no cross-over effects such that, for example, a person feeling dissatisfied in relatedness was motivated to satisfy a different need, like competence. Finally, Sheldon and Gunz found that it was endorsing active dissatisfaction (e.g., agreeing to the item "I am lonely"), and not the mere lack of endorsement of satisfaction (e.g., disagreeing to the item "I feel a sense of contact with others"), which predicted motivation to obtain a particular experience. In other words, it was the *salient dissatisfaction* of a need that was associated with wanting the need. Gray, Ishii, and Ambady (2011) also underlined the specificity of behavioral motives aroused by dissatisfaction in terms of basic perceptual processes: participants who experienced negative affect instigated by social loss became more sensitive to others' nonverbal communication, but those who experienced negative affect aroused by failure did not show this sensitivity. Together, these studies provide support for the notions that satisfaction and dissatisfaction are distinct elements of motivational processes and that dissatisfaction of a need may strongly arouse corresponding motive processes.

The research by Sheldon and Gunz (2009) was extended by Sheldon, Abad, and Hinsch (2011) to provide another, more ecologically valid test of the TPM. Study 1 found, somewhat counterintuitively, that both positively worded (connectedness) and negatively worded (loneliness) relatedness need satisfaction items correlated positively with participants' amount of daily Facebook use. Does this mean that Facebook causes both loneliness and connectedness or that both types of feelings cause Facebook use? Or, might loneliness and connectedness operate at different parts of the behavioral sequence, such that one is a cause, and the other a result, of Facebook use? Sheldon, Abad, et al. (2011) adopted the latter view, positing that relatedness need dissatisfaction *drives* Facebook use, whereas relatedness need satisfaction *derives* from Facebook use. Study 2 supported this by showing that the association between Facebook use and general loneliness was mediated by a measure of "using Facebook to cope", and the association between Facebook use and general connectedness was mediated by a measure of Facebook-specific connectedness. In Study 3, which asked all participants to stop using Facebook for 48 hours, participants' relatedness satisfaction decreased during the deprivation period, consistent with the idea that satisfaction is an outcome of Facebook use. Also, those who became more dissatisfied in their relatedness in the deprivation period subsequently used Facebook more when they were allowed to resume the behavior, consistent with the idea that relatedness dissatisfaction is a cause of Facebook use. Thus, it was specifically a salient discrepancy (increased dissatisfaction but not decreased satisfaction) that aroused the motive to connect and need-relevant behavior, which is illustrated in the first link in the model presented in Figure 1. And it

was need-relevant behavior that predicted changes in need satisfaction (but not dissatisfaction), which is illustrated in the last link of the model presented in Figure 1.

Support for the notion that dissatisfaction arouses need-specific behavior has also been provided for the need for autonomy. Radel, Pelletier, Sarrazin, and Milyavskaya (2011) found that an initial deprivation of autonomy led people to make restorative efforts, just as with competence and relatedness demonstrated previously (Sheldon, Abad, et al., 2011; Sheldon & Gunz, 2009). Extending this other research, however, Radel et al. (2011) distinguished between acute and chronic need-dissatisfaction. They applied Selye's (1950) general adaptation syndrome model of the stress response to reason (and subsequently demonstrate) that acute autonomy deprivation leads to restorative efforts, whereas more chronic deprivation leads to a sense of helplessness or to compensatory, less adaptive motives. In other words, missing requirements ("stressors") do spur motivated behavior ("resistance"), up to a point. However, if a person's behaviors continually fail to satisfy the requirement, then a motivation or helplessness may ensue ("exhaustion"). Although SDT typically views unmet needs as hindering motivated behavior (just as any organism is compromised when a crucial nutriment is missing), Radel et al.'s (2011) findings suggest that unmet needs can be both motivating at an acute level and motivating at a chronic level (see Sheldon, 2011, for more discussion of this notion).

Understanding the different processes that follow from acute and chronic effects of need thwarting is important for further understanding need dynamics, as it allows another way of considering how needs and motives can become decoupled. Recall that needs are universally required inputs from the needs-as-requirements perspective, whereas people can vary in their motive strength from the needs-as-motives perspective. Under chronic deprivation, a person's motive to get a particular type of experience may become extinguished because efforts to satisfy that need have traditionally amounted to wasted effort. However, though the motive is extinguished, the requirement is not and will still produce dissatisfaction. Thus, a person may develop a motive that maintains an aim to satisfy the basic missing requirement but, because the person does not perceive readily feasible routes, they pursue compensatory, indirect routes that often fail to satisfy the underlying need (cf. Kasser, 2002). For example, a person with few job prospects in a depressed economy may frequently be thwarted in his attempts at developing professional competence and/or securing basic physical needs, and so orients to gambling as a sidelong approach to procuring competence and basic security needs (and a generally dismal one at that).

Individual differences in motive strength. Our discussion of the TPM so far has been primarily geared toward demonstrating that the basic psychological needs identified by SDT do, in fact, have a behavioral motive aspect typically covered by MDT. Here we turn to the role of individual differences in motives and what role these individual differences play within the TPM.

Motive disposition theory suggests that dispositional motives are tendencies to seek out particular psychosocial experiences (McClelland, 1985). Under MDT these tendencies are a function of early learning, though what sets them in motion is not particularly crucial for the TPM.² What is crucial is that the core MDT needs correspond strongly to the basic needs under SDT and that having a strong dispositional motive for a need tends to bring about behavior aimed at satisfying that need, and thus actual need satisfaction. Stated differently, a motive disposition (e.g., for achievement) should be associated specifically with satisfaction of the underlying need (e.g., competence). Sheldon and Schöler (2011) measured motive dispositions for achievement and affiliation and found support for this specificity hypothesis in that "wanting" achievement led to "having" competence, and "wanting" affiliation led to "having" relatedness, and in both cases these effects were mediated by need-relevant goal attainment. Thus, motives exhibit an appetitive characteristic in that they lead to need-relevant attainment and

satisfaction, just as MDT proposes. Notably, the wanting – having finding was consistent across both implicit and explicit measures of motive dispositions. This specificity finding supports the TPM's hypothesis that motives target particular requirements, and also points to the pathway from satisfaction to reinforcement (and thus to disposition). We have recently generated more direct (though preliminary) support for this latter pathway: over the course of a semester, increases in competence satisfaction lead to increases in the explicit nAch (unpublished data). This investigation holds some promise for demonstrating historically elusive effects for motive acquisition (cf. McClelland, 1965).

Another important finding from the Sheldon and Schüler's (2011) longitudinal research was that, though people differed in motive dispositions and thus the amount of corresponding need satisfaction they experienced during the study, the extent to which global well-being was predicted by need satisfaction was not moderated by motive disposition. Thus, though people may vary in the *wanting* of particular experiences, they do not vary in how much *getting* those required experiences affects their well-being. This further supports SDT's conceptualization of competence and relatedness as important psychological nutrients for everyone (Ryan, 1995), not just for people who happen to orient toward one or the other.

However, although motives and need satisfaction did not interact to predict general well-being, Sheldon and Schüler (2011) found that a matching effect did arise between motive dispositions and the goals to which participants were assigned to pursue. Specifically, participants reported more self-concordance for their assigned goal (i.e., they felt more volitional and less pressured in pursuing it) when the goal participants were assigned to pursue matched a strong explicit motive. These results suggest that the participants truly did experience the fit between the goals that they were consciously pursuing and their personality system. This effect, in turn, predicted greater longitudinal goal attainment, which in turn predicted greater well-being (mediated by positive effects on need satisfaction). Further, in a set of studies extending this research, Schüler, Brandstätter, and Sheldon (2013) uncovered another matching effect such that participants' implicit motives moderated how much *domain-specific* well-being and flow they experienced from need satisfaction, but did not moderate need satisfaction's contribution to global well-being. Taken together, these studies suggest motive dispositions affect how people want to pursue motive-congruent goals, boosting their ability to get their own experiential needs met. And they also may indicate how much people like motive-congruent experiences (cf. Berridge, 2004). But they do not alter the effect of these experiences upon one's core psychological health.

At this point, we can introduce an analogy for the TPM broadly: a self-avowed lover of citrus fruit may strongly embrace the suggested goal of planting an orange tree in her yard. Once the oranges come in, she may relish consuming the oranges. Her delight is so great that she walks next door and enthusiastically asks that her neighbor try them. The neighbor, not much for oranges but agreeable, obliges and chokes one down. Despite that the neighbors diverge greatly in their wanting and liking of the oranges, the nutritive benefits will not be appreciably different between them.

Looking ahead

Although many of the basic tenets of the TPM have received strong support already, the model is new and the research directions it contains are still unfolding. As mentioned above, our laboratory has begun to provide evidence for a continued tuning of (at least explicit) motive dispositions driven by operant conditioning processes, and this sort of fundamental motivational operation would be best explored by multiple research laboratories. Below we list a few other tantalizing empirical and theoretical points that seem ripe for exploration at the moment:

1. To date, need satisfaction has been measured almost exclusively by self-report questionnaire. Contrastingly, motives have been measured through both implicit and explicit means. It would be a significant leap forward if the field were to develop implicit measures of need satisfaction. This would allow the examination of whether implicit and explicit satisfactions are typically uncorrelated as with motives, and whether they have divergent criterion validity. Further, implicit need satisfaction measures would help us examine whether need satisfaction is primarily recognized by and consequential for the conscious, agentic self, as proposed by SDT, or if need processes in general might be best accessed via implicit measures targeting the non-verbal, experiential self, as under MDT (Schultheiss & Brunstein, 1999).
2. We have noted above how motives and requirements can become decoupled. An important avenue for research dealing with this decoupling would be to examine the developmental trajectory by which chronic dissatisfaction of needs can deactivate motives for basic requirements, and perhaps also initiate suboptimal, compensatory motive processes.
3. Related to #2, if we conceptualize need thwarting and motive strengths as underlying etiological factors of helplessness and compensatory motives, this may afford us a relatively simple, multifinal developmental framework for working with complex psychopathological phenomena.

These are a few of the interesting avenues of research and theory that we think the TPM can illuminate and motivate. We hope the TPM inspires other researchers to bring their creativity to bear on it and provide new insights and pathways.

Conclusion

In this article, we have argued for a definition of psychological needs as *tendencies to seek out certain basic types of psychosocial experiences, to a somewhat varying extent across individuals, and to feel good and thrive when those basic experiences are obtained, to the same extent across individuals* (cf. Sheldon, 2011). Though straightforward on its surface, this definition has the potential to provide an elegant bridge between two of the longest-running contemporary conceptualizations of psychological needs where none had previously existed. It affords a Two Process Model by which we can de-conflate needs-as-motives and needs-as-requirements, and thus proceed with a more unified science of human motivation.

Short Biographies

Mike Prentice is a PhD candidate in the Department of Psychological Sciences at the University of Missouri. He received a BA in Psychology and Philosophy from Knox College and an MA in Social and Personality Psychology from York University in Toronto. Last year, Mike was an Instructor in psychology at Knox College in Galesburg, Illinois. His research interests include goal conflict, anxious uncertainty and extremism, materialistic values, and cooperative behavior. He has published work with collaborators in the journals *Social Cognitive and Affective Neuroscience*, *Journal of Personality and Social Psychology*, *Journal of Social Issues*, *Social Cognition*, and *Psychological Inquiry*, and recently contributed a chapter to *Meaning in Existential and Positive Psychology*.

Marc Halusic's work concerns self-determination theory and topics such as the relation between autonomy and personality development as well as autonomy supportive teaching styles. Additional research focuses on some of the non-deliberative determinants of behavior and motivation, such as habits, implicit motives, and decision making under severe time constraint. He is presently

a graduate student at the University of Missouri, Columbia. He holds a BA in Psychology from UC Berkeley and an MA in Social and Personality Psychology from the University of Missouri, Columbia.

Ken Sheldon is a Professor in the Department of Psychological Sciences at the University of Missouri in Columbia, Missouri, USA. He received his PhD from the University of California, Davis and completed postdoctoral work at the University of Rochester. Professor Sheldon's research interests center on the intersection of self-determination theory and goal theory, with particular emphasis on what types of goals and motives promote optimal personality development and psychological well-being. He has published more than 150 articles on these topics in journals such as *Journal of Personality and Social Psychology*, *Psychological Review*, *Personality and Social Psychology Bulletin*, and *American Psychologist*. In 2003, he received a Templeton Prize for excellence in positive psychology research (\$30,000). He is the author of *Optimal human being: An integrated multilevel perspective* (2004, Erlbaum Press) and *Self-determination theory in the clinic: Promoting physical and mental health* (2002, Yale University Press), and was the lead editor of *Designing positive psychology: Taking stock and moving forward* (2011, Oxford University Press). Sheldon is currently an Associate Editor at the *Journal of Personality*.

Notes

* Correspondence: Department of Psychological Sciences, University of Missouri, Columbia, MO, USA. E-mail: Sheldonk@missouri.edu

¹ Perhaps MDT's nPow is a blend of the need for autonomy, need for competence, and need for positive regard from others (i.e., self-esteem or respect; considered a quasi-need under SDT).

² It is remarkable that, to date, MDT does not incorporate any theorizing about or investigation of gene X environment interactions in motive development. This is likely a function of MDT's assumption of a sort of blank slate pleasure principle that is then shaped and reinforced by the environment. However, given the ubiquity of gene X environment effects on personality processes just like those in the domain of MDT, we suspect that such gene X environment effects do exist and require explication.

References

- Adler, A. (1927). *Understanding Human Nature*. London: George Allen & Unwin.
- Atkinson, J. W., & Birch, D. (1970). *The Dynamics of Action*. New York: Wiley.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, **117**, 497–529.
- Berridge, K. (2004). Motivation concepts in behavioral neuroscience. *Physiology and Behavior*, **81**, 179–209.
- Brunstein, J. C., Schultheiss, O. C., & Grassmann, R. (1998). Personal goals and emotional well-being: The moderating role of motive dispositions. *Journal of Personality & Social Psychology*, **75**, 494–508.
- Carver, C., & Scheier, M. (1998). *On the Self-Regulation of Behavior*. Cambridge, UK: Cambridge University Press.
- Chirkov, V., Ryan, R. M., Kim, Y., & Kaplan, U. (2003). Differentiating autonomy from individualism and independence: A self-determination theory perspective on internalization of cultural orientations and well-being. *Journal of Personality and Social Psychology*, **84**, 97–110.
- Colten, H. R., & Altevogt, B. M. (2006). *Sleep Disorders and Sleep Deprivation: An Unmet Public Health Problem*. Washington, DC: The National Academies Press.
- Crocker, J., & Park, L. E. (2004). The costly pursuit of self-esteem. *Psychological Bulletin*, **130**, 392–414.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. New York: Plenum.
- Deci, E. L., & Ryan, R. M. (1991). A motivational approach to self: Integration in personality. In R. Dienstbier (Ed.), *Nebraska Symposium on Motivation: Perspectives on Motivation* (vol. **38**, pp. 237–288). Lincoln, NE: University Of Nebraska Press.

- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, **11**, 227–268.
- Filak, V. F., & Sheldon, K. M. (2003). Student psychological need satisfaction and college teacher course evaluations. *Educational Psychology*, **23**, 235–247.
- Gollwitzer, P. M. (1990). Action phases and mindsets. In E. T. Higgins, & R. M. Sorrentino (Eds.), *Handbook of Motivation and Cognition* (vol. 2, pp. 5392). New York: Guilford Press.
- Gray, H. M., Ishii, K., & Ambady, N. (2011). Misery loves company: When sadness increases the desire for social connectedness. *Personality and Social Psychology Bulletin*, **37**, 1438–1448.
- Heider, F. (1958). *The Psychology of Interpersonal Relations*. New York: Wiley.
- Kasser, T. (2002). *The High Price of Materialism*. Cambridge: MIT Press.
- LaGuardia, J. G., Ryan, R. M., Couchman, C. E., & Deci, E. L. (2000). Within-person variation in security of attachment: A self-determination theory perspective on attachment, need fulfillment, and well-being. *Journal of Personality and Social Psychology*, **79**, 367–384.
- Maslow, A. H. (1954). *Motivation and Personality* (1st edn). New York: Harper.
- McClelland, D. C. (1965). Toward a theory of motive acquisition. *American Psychologist*, **20**, 321–333.
- McClelland, D. C. (1984). *Motives, Personality, and Society: Selected Papers*. New York: Praeger.
- McClelland, D. C. (1985). *Human Motivation*. Glenview, IL: Scott, Foresman & Co.
- McDonald, M. M., & Donnellan, M. (2012). Is ostracism a strong situation? The influence of personality in reactions to rejection. *Journal of Research in Personality*, **46**, 614–618.
- Miller, G. A., Galanter, E., & Pribram, K. H. (1960). *Plans and the Structure of Behavior*. New York: Holt, Rinehart and Winston.
- Murray, H. (1938). *Explorations in Personality*. New York: Oxford University Press.
- Nettle, D. (2006). The evolution of personality variation in humans and other animals. *American Psychologist*, **61**, 622–631.
- Niemiec, C. P., Ryan, R. M., & Deci, E. L. (2009). The path taken: Consequences of attaining intrinsic and extrinsic aspirations in post-college life. *Journal of Research in Personality*, **43**, 291–306.
- Pittman, T. S., & Zeigler, Z. R. (2007). Basic human needs. In A. W. Kruglanski, & E. T. Higgins (Eds.), *Social Psychology: Handbook of Basic Principles* (2nd edn, pp. 473–489). New York: Guilford Press.
- Pyszczynski, T., Greenberg, J., Solomon, S., Arndt, J., & Schimel, J. (2004). Why do people need self-esteem? A theoretical and empirical review. *Psychological Bulletin*, **130**, 435–468.
- Radel, R., Pelletier, L. G., Sarrazin, P., & Milyavskaya, M. (2011). Restoration process of the need for autonomy: Early alarm stage. *Journal of Personality and Social Psychology*, **101**, 919–934.
- Rogers, C. (1961). *On Becoming a Person: A Therapist's View of Psychotherapy*. Boston: Houghton Mifflin.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, **55**, 68–78.
- Ryan, R. M., & Deci, E. L. (2008). Self-determination theory and the role of basic psychological needs in personality and the organization of behavior. In O. John, R. Roberts, & L. A. Pervin (Eds.), *Handbook of Personality: Theory and Research* (pp. 654–678). New York: Guilford Press.
- Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. *Journal of Personality*, **63**, 397–427.
- Schüler, J., Brandstätter, V., & Sheldon, K. (2013). Do implicit motives and basic psychological needs interact to predict well-being and flow? Testing a universal hypothesis and a matching hypothesis. *Motivation and Emotion*, **37**, 480–495.
- Schultheiss, O. C. (2008). Implicit motives. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of Personality Psychology: Theory and Research* (3rd edn, pp. 603–633). New York: Guilford Press.
- Schultheiss, O. C., & Brunstein, J. C. (1999). Goal imagery: Bridging the gap between implicit motives and explicit goals. *Journal of Personality*, **67**, 1–38.
- Schultheiss, O. C., & Brunstein, J. C. (Eds.). (2010). *Implicit Motives*. New York: Oxford University Press.
- Schultheiss, O. C., & Strasser, A. (2012). Referential processing and competence as determinants of congruence between implicit and explicit motives. In S. Vazire, & T. D. Wilson (Eds.), *Handbook of Self-Knowledge* (pp. 39–62). New York: Guilford.
- Selye, H. (1950). Stress and the general adaptation syndrome. *British Medical Journal*, **4667**, 1383–1392.
- Sheldon, K. M. (2011). Integrating behavioral-motive and experiential requirement perspectives on psychological needs: A two process model. *Psychological Review*, **118**, 552–569.
- Sheldon, K. M., Abad, N., & Hinsch, C. (2011). A two-process view of Facebook use and relatedness need-satisfaction: Disconnection drives use, and connection rewards it. *Journal of Personality & Social Psychology*, **100**, 766–775.
- Sheldon, K. M., Cheng, C., & Hilpert, J. (2011). Understanding well-being and optimal functioning: Applying the Multilevel Personality in Context (MPIC) model. *Psychological Inquiry*, **22**, 1–16.
- Sheldon, K. M., & Gunz, A. (2009). Psychological needs as basic motives, not just experiential requirements. *Journal of Personality*, **77**, 1467–1492.
- Sheldon, K. M., & Schüler, J. (2011). Wanting, having, and needing: Integrating motive disposition theory and self-determination theory. *Journal of Personality and Social Psychology*, **101**, 1106–1123.

- Sheldon, K. M., & Schöler, J. (in press). Agency and its discontents: A two process perspective on basic psychological needs and motives. In L. Cooper, & R. Larsen (Eds.), *The Handbook of Personality Processes and Individual Differences*. Washington, DC: APA Press.
- Sheldon, K. M., & Tan, H. (2007). The multiple determination of well-being: Independent effects of positive needs, traits, goals, selves, social supports, and cultural contexts. *Journal of Happiness Studies*, **8**, 565–592.
- Sheldon, K. M., Elliot, A. J., Kim, Y., & Kasser, T. (2001). What's satisfying about satisfying events? Comparing ten candidate psychological needs. *Journal of Personality and Social Psychology*, **80**, 325–339.
- Sheldon, K. M., Ryan, R. M., & Reis, H. R. (1996). What makes for a good day? Competence and autonomy in the day and in the person. *Personality and Social Psychology Bulletin*, **22**, 1270–1279.
- Smith, C. V. (2007). In pursuit of 'good' sex: Self-determination and the sexual experience. *Journal of Social & Personal Relationships*, **24**, 69–85.
- Tay, L., & Diener, E. (2011). Needs and subjective well-being around the world. *Journal of Personality & Social Psychology*, **101**, 354–365.
- Winter, D. (1992). A revised scoring system for the power motive. In C. P. Smith (Ed.), *Motivation and Personality: Handbook of Thematic Content Analysis* (pp. 311–324). Cambridge: Cambridge University Press.

Copyright of Social & Personality Psychology Compass is the property of Wiley-Blackwell and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.